Paul Brown

A personal view of art and virtuality in the context of technology

Fifteen years ago I exhibited some work that explored unusual perturbations in otherwise consistent color interpolation. The gallery was a part of University College, London and several scientists saw the show. One, a Polish mathematician and physicist called Andre Lissowski, chased me up. He was interested in the work I had done and wondered if it bore any relationship to other contemporary research into what are now called non-linear phenomena—part of the field fashionably dubbed Chaos. Chaos studies were still an underground activity at that time and Andre took me along to small back rooms at the Royal Institution and ancient London Colleges where mostly young scientists along with the occasional Nobel laureate discussed the fantastic new ideas that were emerging worldwide.

There were regular visitors from overseas bringing updates that the journals were still reluctant to acknowledge and publish. Most of it went way over my head although Andre did his best to explain. His main interest was Grand Unified Theories of everything (GUT's)—a single set of laws that could describe all observable phenomena both electromagnetic and gravitational. He suggested that the universe could be like a close packed geometric ether. Chaotic perturbations in this ether would cause transient instabilities. These instabilities would manifest themselves in time as wave-like phenomena or in time-independent "snapshots" as quarks and other subatomic particles. The elapsed time between the chaotic breakdown and subsequent reestablishment of the geometry would be equivalent to the particles' lifetime.

I asked Andre what stuff this close packed ether might be composed of. He looked a me and replied, "…Well, it may be imagination." I was pretty shocked to hear a member of what I then believed to be a rational, pragmatic discipline using such a word. Imagination, I thought, was the preserve of artists and other dreamers.

Now, some fifteen years later, we have been fortunate to witness a radical revision of cultural values and the erosion of stereotypes. Artists are now more regularly becoming involved with the mysteries of science and technology. Scientists are acknowledging the inadequacies of the rational method. It would appear that concepts like "reality" and "illusion" become less and less meaningful as their common boundary dissolves.

Nevertheless many prejudices remain and these are particularly dominant in the art world. They are, in my opinion, detrimental to the future development of the field. Art is entering an evolutionary cul-de-sac and seems unable to realign itself to post-industrial culture. It is in danger of becoming an outmoded decoration which, like Christmas tinsel, will be dispatched in the New Year's trash.

I believe the current problems of art assessment and marginalization, partially evidenced by the criticism of arts funding organizations, are one aspect of this crisis. Although I certainly do not agree with the detractors of the National Endowment of the Arts, it is nevertheless my opinion that the art mainstream has only itself to blame for becoming so isolated from the intellectual movements of our time that it is an easy target for cynical fundamentalist demagogues and former anti-communists in search of a new enemy. It would be unfortunate to see the current attacks on the arts as a validation of the work and working methods attacked. The vulnerability of the arts to attack by mental midgets and to cuts in governmental funding is the result of a larger crisis of confidence in the value of art which is a consequence of the diminishing accountability of the art establishment and its inability to respond to change during the past half century. Many

still labor under outmoded notions of art as subversion, material production, utopianism, and functional decoration. The art world must re-evaluate its mission. In particular, educational institutions should revise their arts curricula in order to encourage new avenues of enquiry that can revitalize the subject.

Art as Subversion

The scientific paradigm of the mechanical universe owes its origins to Isaac Newton. Other thinkers of his period, like Kircher before and Goethe after him, retained an interest in the tradition of alchemy and in holistic theologies, ideas whose roots extend back through Islam to the Greek, Egyptian and Babylonian cultures. Newton established rational enquiry and reductionism as the dominant scientific method. A polarity evolved when, in reaction, the arts adopted Romanticism as the preeminent ideology. The artist was concerned with imagination and emotion, the scientist with reality and logic. Increasingly the artist became an outsider, a commentator and critic rather than a contributor and participant.

Blake's engraving of Newton illustrates the polarity. In it Newton is bent over and perusing a rudimentary geometric diagram scrawled in the sand. Above his head the full glory of the heavens are manifest - and are ignored. Blake, an early critic of the rational method, went on in his poem Eternity to proclaim:

He who binds to himself a joy
Does the winged life destroy
But he who kisses the joy as it flies
Lives in eternities sun rise

With the invention of photography the immediate utility of art as visual documentation was severed. Artists like Proudhon (who is believed to be the originator of the term "property is theft") promoted the role of art as a subversive activity. In the Twentieth Century a number of art movements, particularly Dada, evolved this premise into a full aesthetic. A definition of subversion depends on the position of the observer. Nonetheless most readers, who subscribe to democracy, support the work of artists in Europe in the Thirties and Forties who attempted to ridicule and under-

mine the forces of totalitarian fascism. Whether or not the critics of the NEA would care to agree, Art as Subversion is a valuable contribution to a healthy society. Whether or not such activity can be effective if it results from the patronage of the very State it seeks to question is another, and equally pertinent, question that I don't intend here to address.

The leaders of the post World War II art establishment, and their students who have now risen to positions of influence, hold dear the concepts of a free and often radical art. We shouldn't be surprised therefore to find that the art mainstream and in particular the art education sector maintain this ideology as their dominant paradigm. It is my opinion that this position has now become as ossified as that which it seeks to question and that a revitalization is overdue.

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Art as Materialism

Also in consequence to the development of photography, a number of artists, notably Post Impressionists like Cezanne and Seurat, began to question the intrinsic nature of the work of art. Here evolves the second major theme of Twentieth Century art history. Whereas the School of Subversion is concerned with the value of the meaning, context, or consequence of the art work, the followers of Cezanne and Seurat eventually rejected all reference to the "outside" world and developed abstraction - art as itself.

With the migration of the art markets from fascist Europe to the USA in the Thirties, art for its own sake took off in a big way. It flourished in a free market economy. By the Mid-sixties the New York artist Andy Warhol was able to give a succinct answer to the postimpressionists questions' about the value of art. According to Warhol the work of art is worth just as much as you can convince somebody to pay for it.

About the same time artists like On Kawara and Sol Lewitt suggest another answer. Rejecting the self referentiality of the artifact inherent in most abstraction, Lewitt phoned instructions to assistants who actually produced the work. The loss of the artifact is of no consequence. Anybody who has access to the instructions is in possession of a "genuine" Lewitt. On Kawara gave a Japanese minimalist solution. The statement "I Am" was signed "On Kawara." A series exploring alternative parsing of the same four-word sequence followed. Another series contains nothing more than the time and/or date the pieces were created. The pieces were often in the form of postcards sent to friends. Both artists rejected the intrinsicality of the work in favor of its value as a pointer to a set of ideas that it initiates.

In the work of these and other artists associated with movements like Art Language and Conceptual and Performance Art during the Sixties, art went through a transition from intrinsic, self-referential artifact to an extrinsic virtual form. It is conceivable that future historians will perceive this shift as the most important since the establishment of the perspectival (human centered) viewpoint during the early renaissance.

Evolving from material monetarist roots virtual art poses many interesting questions. Since it is by nature intangible, how can it be communicated, classified, preserved and marketed? The art mainstream has been singularly unsuccessful in coming to terms with these important issues.

Art as Utopia

The third important theme that has woven its way through the Twentieth Century has been art in the service of the establishment. Evaluation of this contribution often hinges on political rather than aesthetic ideology. I suspect that the architect of the Pentagon is, if still alive, a respected member of society. Albert Speer, architect of the buildings of the Third Reich, was imprisoned for life after the war and denied access to any kind of drawing

material—even prevented from producing formal gardens. Although most of us would, I hope, agree that Speer was working for the wrong side many might also share my feeling that his punishment—denying an artist his tools—was unnecessarily harsh. In general the heady idealism of artists who believed they were working for the betterment of society has suffered considerably in recent times. The tower blocks of the Internationalist Style remain as one of the most visible and most maligned of the contributions of Modernism.

The ideals of the Modernists have been identified with the eugenic "purist" ideologies of the European totalitarian dictatorships. This conflicts with the evidence that many of the Modernists (members of the Constructivists, de Stijl, Bauhaus, etc.) also contributed to Dadaism and the more "subversive" art forums.

What we find is that the one major art movement of the Twentieth Century dedicated to the direct service of humanity via support of the establishment infrastructures has been discredited by the art mainstream. This was achieved by both historical marginalization and by association with political ideologies that most find unacceptable. To resort to a cliche: the baby got thrown out with the bath water.

In doing this, the art world reemphasized its own "outsider," Romantic, marginal status at precisely the time it could have recognized new and vital opportunities. In consequence its credibility with the establishment has suffered considerably and its sources of funding have become increasingly threatened, if they have not already been reduced or withdrawn.

Applying Art to Life

In the Fifties, the Royal College of Art in London established what is claimed to have been the first specialist course (university degree program) in Graphic Design in the world. In these mid years of the century major changes were taking place in art education. The dispersal of the Bauhaus faculty had distributed awareness of its radical new curricula. The training of the artist had originally been

general and it was left to the student to decide whether to practice either "fine" or "applied" arts. Now specialization was introduced and it was possible to train exclusively in design and ignore the fine arts and vice versa.

In retrospect we can consider this move toward specialization, at a time when society was on the brink of a shift to more generalization, to have been a poor strategy. In particular it created marginalization. Now, as funding for arts education is being reduced, the design areas are publicly defaming the fine arts hoping to take the major share of the reduced income. In fact this sibling rivalry serves only to weaken the credibility of both areas. We should also consider that this high degree of specialization coupled with academic marginalization has weakened the ability of art or design to respond to the challenge of interdisciplinary initiatives like Scientific Visualization.

Nevertheless the founders of the School of Graphic Design at the Royal College of Art had a social ideology. Several were survivors of the fascist rape of Europe and hoped that design could be used to prevent its reoccurrence. In their vision Graphic Design would become a vehicle for the packaging of information in order to enhance its communicative potential and so enable people to better identify the issues that affected them.

In fact, over the following thirty years, Graphic Design as a discipline devolved into a decorating service for advertising and marketing. Professor John Lansdown, head of the UK's Center for Advanced Studies in Computer Aided Art and Design, in a recent letter to me, aptly described practitioners as "the slaves of the yuppie culture."

Bill Cleveland, a statistician and researcher at Bell Labs, has spent over fifteen years investigating better methods for graphing data. In a recent conversation with me he acknowledged that during this period he had not found any significant input from the Graphic Design discipline and that in fact he believed that designers often destroyed the value of numerical data by using poor and ineffective graphing models.

Cleveland is at the forefront of the area now known as Scientific Visualization. It is an area that has a long history in art and design as Scientific, Technical, and Medical Illustration. If Cleveland is right it would appear that the marginalization and specialization now typical of art education has significantly weakened the area's ability to contribute to these important developing areas. The USA's National Science Foundation (not an arts funding institution) is currently offering grants to develop Scientific Visualization courseware. Meanwhile the NEA is receiving criticism for funding "subversive" activity. At grass-roots level the art and design input to scientific visualization often consists of little more than "tarting up" some data—an activity, as Cleveland suggests, that more often obscures than reveals its meaning. Here, yet again, we find that the art establishment has carefully and precisely shot itself in the foot.

Postmodernism and Chaos

At the same time that groups of artists in the Sixties were breaking ties with traditional value structures and evolving new paradigms for the art experience, groups of scientists were investigating new, analytical models made possible by access to high-speed calculation. As computers became more available their use began to reveal weird behaviors in what had been considered simple, deterministic systems. The field now known as Chaos evolved and, during the past thirty years, has established itself as the dominant scientific paradigm.

During the same period the arts slipped into yet another period of romantic self indulgence call Postmodernism. The paradigm shift that should have followed the pioneering work by Sixties artists never occurred. The art establishment rejected change and ignored the flow and evolution of a knowledge base that was changing science and would eventually change our society.

At the grass roots many artists defied their conditioning and forsook professional recognition in order to explore these new areas. Many adopted the emerging tools of digital technology. The establishment

dumped them, refusing to acknowledge, exhibit, or publish their work. The artists responded by developing a number of alternative venues, like the annual SIG-GRAPH Art Show, which is still considered by the mainstream to be a marginal event.

What is interesting to consider is that science, because of its rational methodology, has to acknowledge these new developments. The art establishment, which bases its evaluation on subjective judgment, could and did choose to ignore them. Art, probably not for the first time in its history, proved the more reactionary and pigheaded of C. P. Snow's "two cultures."

Towards a New Model

At SIGGRAPH some years ago one speaker commented that "even military shoppers like their hardware to look good." The success of design over the past thirty years has been a consequence of its ability to add value to consumer items and services. The success of a design is measured by market preferences, the number of people who buy or subscribe in some way to the commodity. Preference measurement, typified by market research methodology, has become the accepted yardstick for design development and appraisal. Clearly this supports the model of designers contributing to a market economy.

Many now believe that the current international recession is symptomatic of the saturation of this economic model and look for alternatives. One of the most often suggested is the information based economy, a heterarchical model that can better account for human and ecological issues. As several researchers have discovered, the measurement of design by preference testing is inadequate when the commodity in question is information.

Preference measurement relates to the concept of the artwork or designed artifact as totally self-referential, a concept that I suggest above became outmoded in the Sixties. In contrast more designers are now investigating the measurement of design by its performance, a more pragmatic approach.

Also performance measurement relates to the concept of the artwork/designed artifact as a signifier whose success is propor

tional to its ability to communicate extrinsic content the signified. This interpretation reinforces the model of art and design as a virtual process whose essence is information exchange. I believe that it is here, when considering the utility of a designed artifact in an information transaction, that we may find an emergent solution to the art mainstream's problems with acknowledging "intangible" artforms. In order to come to terms with its current problems the art education sector could well prioritize this area for investigation.

A Case Study:
The Australia Telecom Bill Redesign

One possible model for a new paradigm comes from the field of Information Design. David Sless is one of the pioneers of new design methodologies and is the co-founder and co-director of the Commu-

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nication Research Institute of Australia. CRIA is attracting international attention for its leading edge research and Sless' books have recently been accepted as set texts in several American universities. At a recent seminar: "Designing Information for People" (Canberra, October 1991), he compared preference and performance measurement techniques for information design.

He suggested that the accepted barometers of current design and market research—the measurement of market preferences and attitudes as well as the use of focus groups (think tanks) and usability labs—are inadequate. He quoted a contemporary report on work to redesign the bills for the US's Mid Western Bell. Preference measurement was used to validate design changes but, when the performance of the revised bill was measured, there was no improvement.

His model was CRIA's revamp of the Telecom bill. The aims were to: improve the

bill; reduce dissatisfaction; reduce confusion; improve the format and understanding; take advantage of modern laser printing technology; and, reduce the volume of paper. Sless pointed out that no two bills are the same and that the problem is not designing a document but rather designing a set of rules that describe the document.

After a rigorous analysis of background information including an evaluation of fifteen bills and past research, CRIA's prototype was iterated through a process of refinement and diagnostic testing which was intended to measure how adequately people could use the bill to extract the information they needed or wanted.

Sless measured their success by the evidence. Customer satisfaction with the Telecom bill has improved from 64 to 84 percent. Even more important is the reduction in the level of complaints from 47 percent to just 4 per cent. This represents a phenomenal improvement particularly when considering that Australia Telecom issues over twenty million bills each year. Here, design has been used effectively in an information economy.

Client relations have improved, communication has been enhanced, significant economic savings (the cost of printing and distributing the bills and supporting complaint services) have been made, and the significant savings in paper has produced ecological benefits.

The current need to package products in order to communicate important messages like their environmental qualities—"our matches come from sustainable forests"— is one example of the transition that is taking place in both consumer and producer attitudes. Legislation concerned with the labeling of medicines and foodstuffs is another. Public demand for more efficient computer human interfaces is yet another.

A lesson for the Fine Arts?

Although these examples relate to applied art—to design—I believe that there is an important lesson here for the fine arts as well. In accepting performance measure-

ment the design community is beginning to wean itself from the concept of the designed artifact as a thing in itself and, equally important, escaping the myth of the omnipotence of its designer. The role of the commodity as a quantifiable signifier that gains meaning via interaction within an information transaction community is beginning to gain acceptance.

This is precisely the kind of development that we might have expected in the fine arts after Conceptual Art, Art Language, and the introduction of electronic communication media in the visual arts. Instead we often find that artists now use computer systems to produce artifacts that are put in frames and hung on walls, an absurdity that almost defies comprehension. What we are witnessing is a common psychological phenomenon, the denial, repression, and suppression of the new and the return to the comfortable, self-indulgent, self-referential, nostalgic, and eclectic concept of art-for-arts-sake now called Postmodernism.

It is important to emphasize here that I am not suggesting that art should necessarily be involved in immediate utility (although I believe that it is an essential part of a healthy society) or a return to Modernism. Although I would certainly agree with Peter Frank who, when commenting on the utopian nature of Modernism in his neoModernist Manifesto, comments that the "neo-Modernists turn to historical Modernism because they see embodied in the Modernist ethos the assertion, if not of human perfectibility, then of human improvability."

My main concern is somewhat simpler. Artists have been offered the opportunity to free themselves from the limitation of the artifact and have, under pressure from the education system and the art establishment, turned that opportunity down. In doing so I believe they have essentially rejected the future and created an historical backwater where art will atrophy.

As I hope I have illustrated above, scientists and applied artists have done somewhat better in adapting to new and often strange paradigms. At least some of them have been prepared to give up long held beliefs and egocentricities as well as to recognize the erosion of cultural boundaries. I believe that the art historian of the future may look back at this period and see that the major aesthetic inputs have come from science and not from art.

Maybe science is evolving into a new science called art, a polymath subject once again. Maybe art itself, at least as we have known it over this past quarter century, has ceased to have any social usefulness. Maybe art, at least in the sense that the Postmodernists use the word, is dead.

The Convergence of Reality and Illusion

The polarity of art and science has its origins in the polarity of human awareness. Newton formalized this polarity and forced the evolution of Romanticism effectively splitting life into two parts. Science pursued the objective world and the rational method. Art investigated the subjective world.

Now science has had to recognize the limits of rational enquiry. It has also, with the development of computational technology, provided a new model for the universe. We now acknowledge the possibility of the universe itself as a computational simulation or the evolution of self aware, conscious, computational entities—artificial life. It is no longer possible to distinguish between "reality" and "illusion." The two are coming together in a holistic model that concerns the relationship of the observer and the observed, the signifier and signified. The term "virtual reality" may well be a pointless oxymoron, but nevertheless, the concept of virtuality is one of the most pertinent of our time.

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